In the Claims

1. (Twice Amended) A metallization stack in an integrated MEMS device, the metallization stack comprising:

a substrate having an electrically conductive structure;

a field oxide, having a contact hole therein, formed over said substrate;

a silicide layer formed in said contact hole of said field oxide ~~on a semiconductor substrate of the integrated MEMS device~~;

a titanium-tungsten layer, formed directly on said silicide layer, to operatively contact ~~an~~ said electrically conductive structure in said substrate ~~the semiconductor substrate of the integrated MEMS device,~~; and

a platinum layer formed over said titanium-tungsten layer;

said silicide layer, said titanium-tungsten layer, and said platinum layer, together, forming an electrical connection to said electrically conductive structure.

2. (Previously Amended) The metallization stack of claim 1, wherein said electrically conductive structure is an active silicon element.

3. (Twice Amended) The metallization stack of claim 2, wherein ~~the semiconductor substrate has an insulating film formed thereon, the insulating film has a contact hole formed therein, the~~ said contact hole exposes a portion of ~~the~~ a surface of ~~the semiconductor~~ said substrate at a bottom of ~~the~~ said contact hole and said silicide layer is formed only on the exposed portion of the surface of said ~~the semiconductor~~ substrate.

4. (Amended) The metallization stack of claim 3, wherein ~~the~~ said platinum layer is a portion of a platinum wiring formed on ~~the insulating film~~ said field oxide.

5. (Amended) The metallization stack of claim 1, wherein the integrated MEMS device is

an optical MEMS.

6. (Amended) The metallization stack of claim 1, wherein the integrated MEMS device is a Bio-MEMS device.

7. (Amended) The metallization stack of claim 6, wherein ~~the~~ said platinum layer forms a corrosive resistant electrode.

8. (Twice Amended) The metallization stack of claim 7, wherein ~~the~~ said electrically conductive structure is an interconnect of the Bio-MEMS device.

Claims 9-22 (Canceled)

23. (Twice Amended) The metallization stack of claim 1, wherein ~~the semiconductor substrate has an insulating film formed thereon; the insulating film has a contact hole formed therein, the~~ said contact hole exposes a portion of ~~the~~ a surface of ~~the semiconductor~~ said substrate at a bottom of ~~the~~ said contact hole and said silicide layer is formed only on the exposed portion of the surface of ~~the semiconductor~~ said substrate,~~;~~ said platinum layer being a portion of a platinum wire formed on ~~the insulating film~~ said field oxide, said platinum layer portion of the platinum wire being formed on said titanium-tungsten layer.

24. (Twice Amended) The metallization stack of claim 23, wherein the integrated MEMS device is an optical MEMS.

25. (Canceled)

26. (Canceled)

30. (Previously Added) The metallization stack of claim 1, wherein said silicide layer is a platinum silicide layer.

31. (Previously Added) The metallization stack of claim 23, wherein said silicide layer is a platinum silicide layer.

32. (New) A metallization stack in an integrated MEMS device, the metallization stack comprising:

a substrate having an electrically conductive structure;

a field oxide formed over said substrate;

a silicide layer formed on said field oxide;

a titanium-tungsten layer, formed directly on said silicide layer, to operatively contact said electrically conductive structure in said substrate; and

a platinum layer formed over said titanium-tungsten layer.

33. (New) The metallization stack of claim 32, wherein said electrically conductive structure is an active silicon element.

34. (New) The metallization stack of claim 32, wherein said platinum layer is a portion of a platinum wiring formed on said field oxide.

35. (New) The metallization stack of claim 32, wherein the integrated MEMS device is an optical MEMS.

36. (New) The metallization stack of claim 32, wherein the integrated MEMS device is a Bio-MEMS device.

37. (New) The metallization stack of claim 36, wherein said platinum layer forms a

corrosive resistant electrode.

38. (New) The metallization stack of claim 37, wherein said electrically conductive structure is an interconnect of the Bio-MEMS device.

39. (New) The metallization stack of claim 32, wherein said silicide layer is a platinum silicide layer.

REMARKS

Claims 1-8, 23, 24, 30, and 31-39 are pending in the present application.

ARGUMENTS WITH RESPECT TO THE REJECTION OF CLAIMS 1, 2, 4-6 & 8

Claims 1, 2, 4-6, and 8 have been rejected under 35 U.S.C. §102(e) as being anticipated by Cohen (US Publication Number 2002/0179921). This rejection under 35 U.S.C. §102(e), to claims 1, 2, 4-6, and 8, and as it also may be applied to newly added claims 32-39, is respectfully traversed.

In presenting the present rejection under 35 U.S.C. §102(e), the Examiner apparently alleges, in the Advisory Action dated August 27, 2003, that the effective US filing date of Cohen is the filing date of US Provisional Application Number 60/295,375 (June 2, 2001) because the filing date of the US Patent Application, from which this publication is based, is June 3, 2002. In other words, the filing date of the US Patent Application, if the priority date is not afforded to it, is subsequent to the filing date of the present application. Thus, Cohen can only qualify as prior art under 35 U.S.C. §102(e) if Cohen is entitled to the earlier priority date of US Provisional Application Number 60/295,375.

To be entitled to the earlier priority date under 35 U.S.C. §119, the Examiner has the burden to demonstrate and establish that the appropriate subject matter upon which the rejection is based meets the requirements of 35 U.S.C. §119, namely The Examiner has the burden to demonstrate and establish that the priority document satisfies the enablement and written description requirements of 35 U.S.C. §112, first paragraph.

With respect to the present rejection, the Examiner has failed to provide any evidence that the underlying priority document, US Provisional Application Number 60/295,375, contains the subject matter upon which the rejection is based and/or that US Provisional Application Number 60/295,375 satisfies the enablement and written description requirements of 35 U.S.C. §112, first paragraph, with respect to the subject matter upon which the rejection is based.

Moreover, the Applicants have thoroughly read and studied the copy of the US Provisional Application Number 60/295,375 that the Examiner provided with the Advisory Action dated August 27, 2003. Based upon this careful review of US Provisional Application Number 60/295,375, the Applicants respectfully submit that US Provisional Application Number 60/295,375 fails to contain any disclosure or suggestion with respect to:

(1) a silicide layer formed on a field oxide;

(2) a titanium-tungsten layer, formed directly on the silicide layer, to operatively contact an electrically conductive structure in a substrate; and

(3) a platinum layer formed over the titanium-tungsten layer.

Therefore, since US Provisional Application Number 60/295,375 is void of any disclosure or suggestion with respect to (1) a silicide layer formed on a field oxide, (2) a titanium-tungsten layer, formed directly on the silicide layer, to operatively contact an electrically conductive structure in a substrate, and (3) a platinum layer formed over the titanium-tungsten layer; the Examiner has failed to provide any evidence to the contrary; or that the Cohen is entitled to a 35 USC §102(e) date of June 2, 2001; Cohen fails to qualify as prior art under 35 U.S.C. §102(e) because the effective 35 U.S.C. §102(e) date of Cohen is June 3, 2002, which is subsequent to the effective filing date of the present application.

However, assuming that the Examiner can clearly demonstrate that the underlying priority document, US Provisional Application Number 60/295,375, contains the subject matter upon which the rejection is based and/or that US Provisional Application Number 60/295,375 satisfies the enablement and written description requirements of 35 U.S.C. §112, first paragraph, with respect to the subject matter upon which the rejection is based, the Applicants offer the following remarks with respect to the teachings of Cohen.

The presently claimed invention, as set forth in amended independent claim 1, is directed to a metallization stack in an integrated MEMS device. The metallization stack includes a substrate having an electrically conductive structure; a field oxide, having a contact hole therein, formed over the substrate; a silicide layer formed in the contact hole of the field oxide; a titanium-tungsten layer, formed directly on the silicide layer, to operatively contact the

electrically conductive structure in the substrate; and a platinum layer formed over the titanium-tungsten layer. The silicide layer, titanium-tungsten layer, and platinum layer, together, form an electrical connection to the electrically conductive structure.

In formulating the rejection under 35 U.S.C. §102(e), the Examiner alleges that Cohen teaches at paragraphs [0145] – [0156] a silicide layer (Examiner notes paragraph [0152] of Cohen) formed on a semiconductor substrate (Examiner notes paragraph [0146] of Cohen) of the integrated circuit device, a titanium-tungsten layer (Examiner notes paragraph [0153] of Cohen) formed directly on silicide layer to operatively contact an electrically conductive in the semiconductor substrate of the integrated MEMS device, a conductive layer (Examiner notes paragraph [0154] of Cohen) formed over the titanium-tungsten layer. This position by the Examiner is respectfully traversed.

With respect to paragraphs [0145] through [0156] of Cohen, these paragraphs teach the formation of a sealing structure (See paragraph [0143] of Cohen). These paragraphs, [0145] through [0156] of Cohen, fail to teach a silicide layer, titanium-tungsten layer, and platinum layer, together, forming an electrical connection to an electrically conductive structure, as set forth in amended independent claim 1.

Moreover, these paragraphs, [0145] through [0156] of Cohen, explicitly teach a metal silicide formed directly on a silicon oxide layer, and thus, these paragraphs, [0145] through [0156] of Cohen, fail to teach a silicide layer formed in a contact hole of a field oxide, as set forth in amended independent claim 1.

With respect to amended dependent claim 4, paragraphs, [0145] through [0156] of Cohen, fail to teach that the platinum layer is a portion of a platinum wiring formed on the field oxide.

With respect to independent claim 32, the presently claimed invention is directed to a metallization stack in an integrated MEMS device. The metallization stack includes a substrate having an electrically conductive structure; a field oxide formed over the substrate; a silicide layer formed on the field oxide; a titanium-tungsten layer, formed directly on the silicide layer, to operatively contact the electrically conductive structure in the substrate; and a platinum layer formed over the titanium-tungsten layer.

As noted above, US Provisional Application Number 60/295,375 is void of any disclosure or suggestion with respect to (1) a silicide layer formed on a field oxide, (2) a titanium-tungsten layer, formed directly on the silicide layer, to operatively contact an electrically conductive structure in a substrate, and (3) a platinum layer formed over the titanium-tungsten layer. Thus, with respect to this subject matter, the effective 35 U.S.C. §102(e) date of Cohen is June 3, 2002, which is subsequent to the effective filing date of the present application. In other words, Cohen fails to qualify as prior art with respect to (1) a silicide layer formed on a field oxide, (2) a titanium-tungsten layer, formed directly on the silicide layer, to operatively contact an electrically conductive structure in a substrate, and (3) a platinum layer formed over the titanium-tungsten layer.

With respect to dependent claim 34, Cohen fails to teach that the platinum layer is a portion of a platinum wiring formed on the field oxide.

In summary, Cohen fails to qualify as prior art with respect to the claimed subject matter of independent claim 32, namely (1) a silicide layer formed on a field oxide, (2) a titanium-tungsten layer, formed directly on the silicide layer, to operatively contact an electrically conductive structure in a substrate, and (3) a platinum layer formed over the titanium-tungsten layer. Moreover, Cohen fails to teach a silicide layer, titanium-tungsten layer, and platinum layer, together, forming an electrical connection to an electrically conductive structure, as set forth in amended independent claim 1. Also, Cohen fails to teach a silicide layer formed in a contact hole of a field oxide, as set forth in amended independent claim 1. Lastly, Cohen fails to teach that the platinum layer is a portion of a platinum wiring formed on the field oxide, as set forth in dependent claims 4 and 34.

Accordingly, in view of the above amendments and remarks, the Examiner is respectfully requested to reconsider and withdraw this rejection.

ARGUMENTS WITH RESPECT TO THE REJECTION OF CLAIMS 3, 7, 23-26, 30 & 31

Claims 3, 7, 23-26, 30, and 31 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Cohen (US Publication Number 2002/0179921) in view of Tsai et al. (US-A-6,6,096,629). This rejection under 35 U.S.C. §103(a) over Cohen in view of Tsai et al., to claims

3, 7, 23-26, 30, and 31, and as it also may be applied to new claims 32-39, is respectfully traversed.

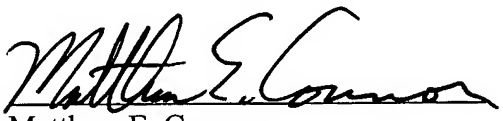
As clearly set forth above, independent claims 1 and 32 are patentable over the teachings of Cohen. Moreover, claims 3, 7, 23, 24, 30, 31, and 33-39 are directly or indirectly dependent upon the independent claims 1 and 32. Thus, since claims 3, 7, 23, 24, 30, 31, and 33-39 depend directly or indirectly from the independent claims 1 and 32 and it has been demonstrated that independent claims 1 and 32 are patentable over the cited prior art, claims 3, 7, 23, 24, 30, 31, and 33-39 must also be patentable.

Accordingly, in view of the remarks set forth above, the Examiner is respectfully requested to reconsider and withdraw this rejection under 35 U.S.C. §103(a).

CONCLUSION

Accordingly, in view of the remarks set forth above, the Examiner is respectfully requested to reconsider and withdraw all the present rejections. Also, an early indication of allowability is earnestly solicited.

Respectfully submitted,



Matthew E. Connors
Registration No. 33,298
Samuels, Gauthier & Stevens
225 Franklin Street, Suite 3300
Boston, Massachusetts 02110
Telephone: (617) 426-9180
Extension 112